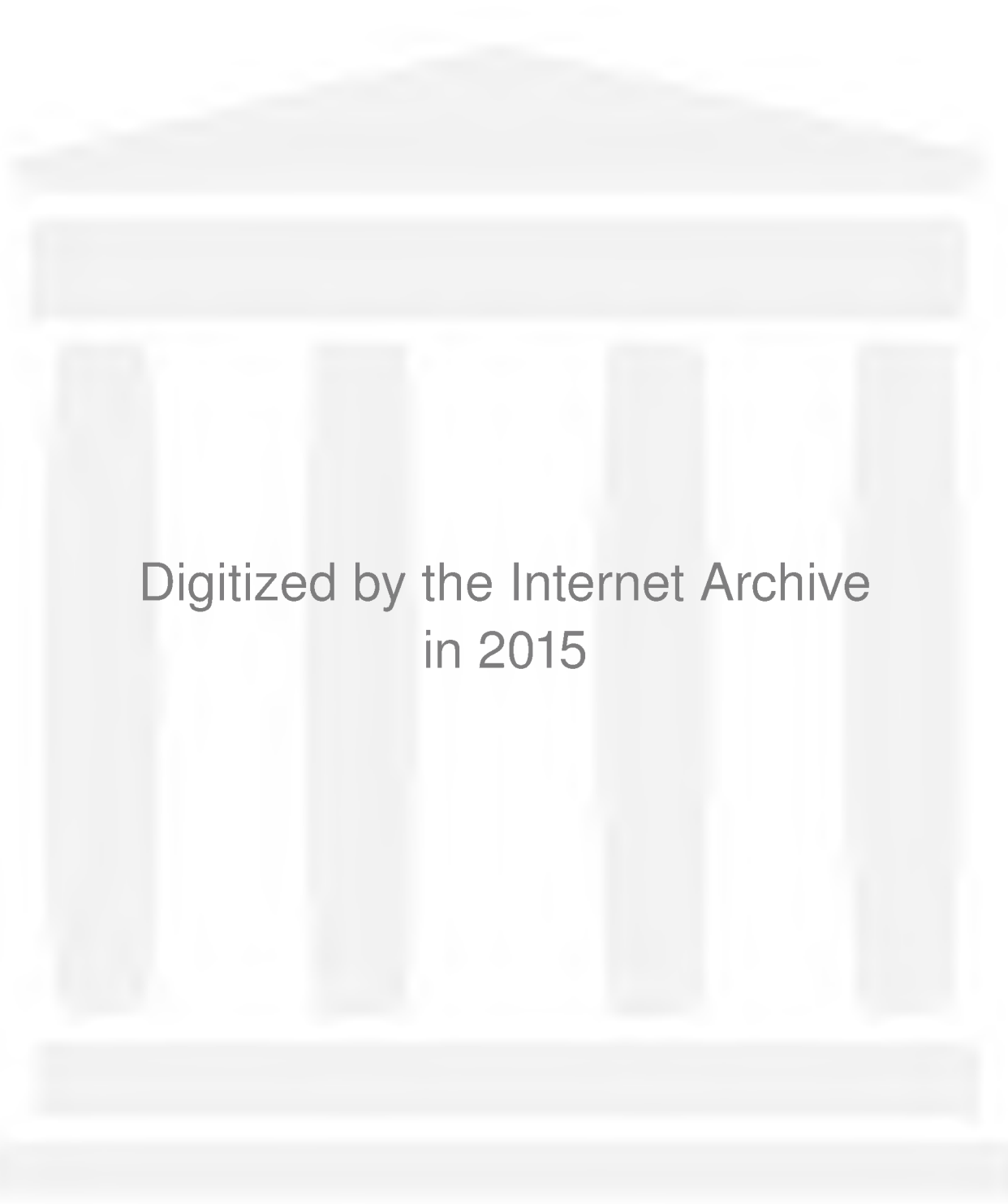


REPORT

OF THE

BETTER BUSINESS METHODS COMMITTEE

- GOVERNOR PINCHOT -

Commonwealth of Pennsylvania

DEPARTMENT OF FORESTS AND WATERS
HARRISBURG

THE SECRETARY

December 21,1932

Honorable Gifford Pinchot
Governor of Pennsylvania
Harrisburg, Pennsylvania

Dear Governor Pinchot:

I have the honor to submit herewith a report of the "Better Business Methods Committee", which you appointed on October 5,1932, for the purpose of suggesting, "possible improvements in any and all the methods under which the State Government does business." The very short time available for such an important job prevented the Committee from going into many details necessary to accomplish complete results.

I am sure you will be pleased to know that all Department Heads and others interviewed cooperated freely and effectively with the Committee.

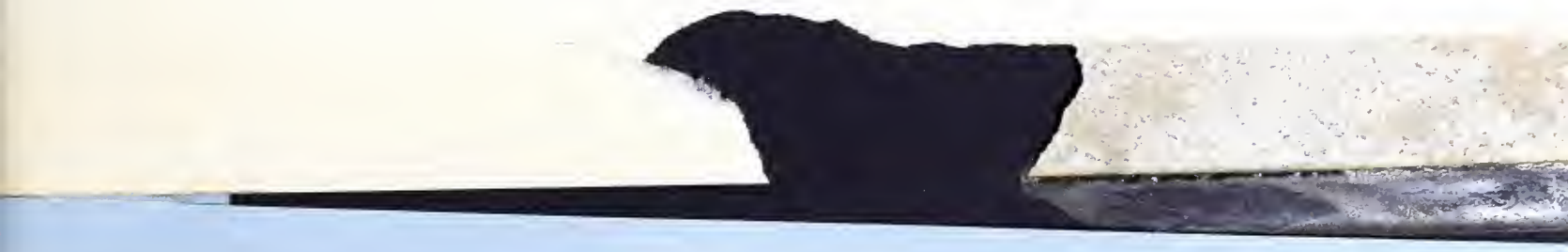
Respectfully submitted,

Lewis E. Staley Chairman

W. S. Hagan

Armand E. Keeley

Edward B. Logan



REPORT OF THE

BUSINESS METHODS COMMITTEE

TO GOVERNOR PINCHOT

December 15, 1932

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I. SUMMARY OF FINDINGS AND RECOMMENDATIONS

Organization

1. Recommendation to eliminate 21 bureaus in 13 General Fund departments and the transfer of the necessary functions now performed by these bureaus to divisions and sections under other bureaus.

2. Recommendation to consolidate duties, eliminate overlapping functions, eliminate unnecessary positions, and reclassify employees to achieve the greatest possible economy from the proposed elimination and consolidation of bureaus.

3. Recommendation to eliminate and consolidate field offices and to give further study toward the elimination and consolidation of field offices and field forces.

4. Recommendation that a revised classification system for all State employees be adopted so that the State will pay equal compensation for equal service.

5. Recommendation that more rigid control be established in the payment of fees by institutions and departments, boards, and commissions.

6. Recommendation that a study be made of all free services now rendered by the State to determine those services that should be made self-sustaining through the charging of fees.

7. The change in law abolishing certain special funds and turning all earnings of departments into the Treasury has caused a loss of revenue in rentals from State-owned buildings such as armories. The recommendation is made that a plan be developed for providing incentives for keeping up and increasing rental income.

Purchases of Supplies and Equipment

1. The present purchasing procedure combines centralized purchasing and centralized ordering. This procedure causes delay in purchasing, high inventories, loss of cash discounts, and results in increased personnel and high cost of operation.

Purchases of Supplies and Equipment Cont'd.

2. A procedure is recommended that will strengthen centralized purchasing, lead to intelligent standardization; insure the purchase of a higher and more uniform quality of commodity, eliminate delay, enable the taking of all cash discounts, and result in increased efficiency and smoothness of operation, and a reduction in the cost of making purchases.

3. Recommendation that a uniform system of control of supplies in all departments, boards and commissions be established.

4. Recommendation that a uniform system of equipment control and condemnation in all departments, boards and commissions be established.

Heat, Light, Power and Water

1. Fees totaling more than a half million annually were paid last year to consultants whose compensation increased in proportion to their expenditures.

Pennsylvania is paying for outside engineering and architectural services at least double what neighboring states pay for similar services within their own organization and control.

The recommendation is made that the law be changed to permit engineering and architectural services to be performed with full time State employees.

2. There is no centralized technical control at Harrisburg over the engineering, heating, power, and similar operating services in the State institutions. It is recommended that such control be established.

There is a lack of technical ability in the operating of power equipment and proper usage of coal. It is recommended that technical instruction and guidance be given.

3. Present State coal purchase methods are in an untenably chaotic condition. Of approximately a million dollars' worth of coal purchased annually a vast majority is now being purchased substantially non-competitively by more than 125 individuals under at least 75 different forms of coal contracts. Wholly inadequate checks and in most instances no checks whatsoever are now being made on the quality of coal as received.

The recommendation is made that a standard form of bid request,

Heat, Light, Power and Water (Cont'd)

specification, and coal contract be established. A suggested form of contract is now being prepared.

4. Economical fuel utilitzation necessitates prescription of the least expensive obtainable fuel to every set of firing conditions. There is no existing function within the State organization competent to determine such fuels prescriptions.

It is recommended that the same control be established for this purpose as in recommendation 2 of this section.

5. There is a lack of adequate power house accounting (logging) making it impossible: (a) to operate economically; (b) to design plant additions economically. Only four institutions out of fifty-one carry satisfactory logging covering technical expenditures totaling over two million dollars annually.

The recommendation is made that a proper system of power house accounting (logging) be established.

6. Lack of application of the yardstick of fixed charge costs to all proposed capital expenditures has resulted in needless over-building of surplus facilities. Methods similar to those now used by the Department of Highways in assessing fixed charges on equipment should be applied to all State capital outlays.

7. In the purchase of engineering supplies and repairs at the institutions little check, if any, is made on comparative prices, serviceability, or quality of goods received.

It is recommended that satisfactory control in this respect be established. This question is still under study.

Utilities

1. There exists an unjustifiable difference in utility rates for equal service among the various institutions within the State.

Utilities (Cont'd)

2. There exists an unjustifiable difference in utility rates for equal service between institutions of this State and neighboring states.

3. Pennsylvania's State-owned institutions are not enjoying special rate schedules as are found in neighboring states.

4. The recommendation is made that these three problems be referred to the Public Service Commission for investigation. Further study should be made to determine the possibility of securing special rates for institutions.

Special Recommendation

Recommendation to set up a continuing or permanent business methods committee to continue the studies as recommended, and carry out the recommendations made in this report. The need for such a body, to continually follow up matters of organization and business procedure, has been seen most clearly in this investigation.

II. INTRODUCTION

Scope of Survey

The Committee on Business Methods surveyed the whole field of State government to determine where its efforts should be concentrated in the limited time available for the study. It was clearly seen that one phase of the governmental system that needed extensive study was the organization of the various departments and that survey constitutes one of the major parts of the study. Second, it was apparent, also, that another phase of State governmental activity that needed thorough investigation was the method by which purchases are made and the methods by which supplies are controlled. That section of the survey constitutes another of the major projects in the Committee's work. Third, it was evident that an investigation of the methods by which fuel, power, heat, and light were purchased and used by the State departments and institutions was badly needed

and such an investigation is in progress and constitutes a third major phase of the Committee's work. In addition to these three major lines of study many minor problems were given consideration.

At the beginning of the survey the Committee divided into sub-committees to facilitate and speed up the work. In the short time which the Committee had, only the organization of General Fund departments could be surveyed. For those General Fund departments it is felt the time was too limited and that some committee should continue the study of those departments, as well as to survey the organization and business methods of the Special Fund departments.

The importance of a committee to follow up the recommendations made in this report and to make the continued studies found to be necessary constitutes one of the major recommendations.

The survey of fuel, power, heat, and light has been only partially completed. The results of the investigations as contained in this report convince the Committee that this survey should continue to completion.

Improvements in Business Methods previously Developed.

The Committee in beginning its work made preliminary inquiry to determine what work had already been done during your Administration to bring about better business methods in the State government. It was found that the following improved methods had already been developed by the Budget Office, the Committee of Accountants and the Departments previous to the work of this Committee:

Expenditures - General

1. In each department the office of Comptroller has been set up and duties defined bringing both auditing and accounting within the Comptroller's office. (The only department where the auditing function has not been placed in the Comptroller's office is in the Department of Highways). This change in organization has brought about much more effective control over expenditures.

Expenditures - General (Cont'd)

2. General accounting records for expenditures changed from cash payments basis to expense basis so that expenses can be included in the month in which incurred.

3. Object classification simplified and coding revised so that mechanical equipment could be used.

4. Detailed list of usual objects, arranged alphabetically and by accounts, issued for the purpose of securing uniform detailed expenditures by objects in all departments for comparative and statistical purposes.

5. Function accounting installed in all executive departments and function-object codes designed to facilitate the recording and determination of expenditures by both function and object classification accounts.

6. Commitment records and procedure for the keeping of same outlined. Commitment accounting involves the charging of the obligation when incurred. It may not be an expense or be paid until six months later, but the Commonwealth is obligated at the time the purchase order is issued. This record is of the utmost value for budget control purposes. Such records were installed in the Department of Property and Supplies covering all appropriations and allocations including allocations to other agencies for materials and supplies and in the Department of Welfare covering the institutions under its supervision.

7. Monthly reports revised to include both function and object expenses and comparisons with previous periods and budget comparisons on expense and commitment bases.

8. Method of making annual allocations and budgeting on annual allocations developed.

Expenditures for Personal Services

1. Job analysis of all positions under the control of the Governor now being made by a committee of three appointed by the Governor under the direction of the Budget Secretary for the purpose of insuring that the State is

Expenditures for Personal Services (Cont'd)

paying equal salaries for equal work and reclassifying positions on the basis of the worth of the position to the State.

2. Standard organization position charts have been prepared.

3. Consolidated personnel forms for appointment, promotion, salary increase or decrease and dismissal for both general and departmental personnel records have been adopted.

4. Uniform procedure has been developed for the keeping of general and departmental personnel records.

5. Records for the Determination of Maintenance Allowances for Officers and Employes in Institutions have been developed.

6. Survey has been made for the purpose of determining the most economical basis for hiring certain classes of employes now paid on a fee or wage basis in lieu of salary.

7. Survey is being made to determine the possibility of using a copy of the payroll instead of a separate form for State retirement deductions, and the possibility of reducing the number of copies required to eliminate the necessity for typing the payroll twice.

Expenditures for Materials, Supplies and Equipment

1. Uniform procedure for departmental stores accounting records has been developed.

2. Uniform procedure for keeping of Welfare and Public Instruction stores accounting records has been developed.

3. Standardized departmental Internal Stores Requisition has been developed.

4. Standardized Monthly Report of Stores for Welfare and Public Instruction Institutions has been developed.

5. A survey of printed forms used by departments, boards and commissions is now in progress and already has resulted in eliminations, standardization of sizes and reductions in printing and paper costs in numerous cases.

Expenditures for Materials, Supplies and Equipment (Cont'd)

6. Letterheads and envelopes have been standardized. Window envelopes have been adopted wherever they can be used with large savings. Mailing costs have been reduced by the use of "Postage Saver " envelopes.

Expenditures for Transportation, Communication and Information

1. A survey of traveling expenses of departments having a large number of employes traveling was made for the purposes of determining abuses, if any, so that standards and rules and regulations could be prepared for such expenses.

Rules and regulations for traveling expenses including standards for meals and rooms have been prepared.

2. Standard Traveling Expense Voucher has been prepared and is in use by all executive departments.

3. A system and records for controlling traveling expenses has been prepared.

4. Performance and cost standards for automobile expense have been developed.

5. Rules and regulations governing the use of telephone, telegraph and postage service have been prepared.

6. Standard forms for travel and hotel order have been devised and are in use by departments.

7. A central mailing room has been established and punched hole envelopes which can be used repeatedly adopted to speed up and more economically deliver inter and intradepartmental mail.

8. Mail delivery service between State departments in Harrisburg and Philadelphia has been established with a large saving in postage.

9. A procedure has been outlined for checking express, freight and cartage charges at Welfare and Public Instruction Institutions.

Revenue

1. A revenue classification and codes for the use of all agencies of the Commonwealth has been prepared.

Other Developments

1. A complete detailed expenditure accounting system for Welfare and Public Instruction Institutions has been established.

2. The installation of centralized accounting for expenditures and commitments of Welfare Institutions in the Department of Welfare has been put into effect.

3. A procedure has been developed for monthly reporting of methods of effecting economies and results secured.

4. A system has been established for the development of monthly performance cost reports by functions.

The report which follows is made in terms of the major projects which the Committee undertook.

III. SURVEY OF DEPARTMENTAL ORGANIZATION

1. General Statement

An important phase of the work of the Committee on Business Methods had to do with a survey of the organization of the departments. The Committee made inquiry to determine whether organization units could be eliminated; where they could be consolidated; where organization units had gotten out of line and needed to be reclassified either upwards or downwards; and to bring about a reorganization of duties within bureaus and sections. It was found that some organization units could be eliminated either by doing away with the unit entirely and transferring the duties to another organization unit to be done by the personnel then in that unit or by consolidating organization units in which process some of the personnel of both units remain. In most departments it was found possible that organization units could be consolidated; that the departments during the course of time had set up more bureaus than necessary or more divisions and sections than necessary. In numerous instances duties were reorganized in bureaus and sections. The results of the organization survey in these various respects are shown under the discussion of the results obtained for each department. Wherever a consolidation of organization units is made it is imperative that department heads should be required to consolidate duties, eliminate personnel, and reclassify salaries wherever possible in order to achieve the greatest economy from the consolidation.

In studying the organization of departments particular attention was given to the field activities of the various departments with a view to the prevention of overlapping services and to consolidating services wherever it could be done. In some cases, field offices could be consolidated or abolished and the duties transferred to Harrisburg.

Inquiry was made to determine whether the payment of fees was properly controlled and recommendations in that respect are made. Inquiry was made to determine whether certain employes should be paid upon a salary or per diem basis.

Throughout its study, the Committee was impressed, time and again, with the importance of the adoption of a revised classification system for all State employes.

Another important subject which the Committee investigated was that of the earnings of the various departments. Under the change in the Administrative Code the earnings of all departments are turned into the Treasury. In some cases the lack of concern in keeping up earnings under such a system has resulted in lower revenue than should be obtained. In some departments changes need to be made in this respect to provide some incentive for greater earnings by the departments and specific recommendations in this respect are made in connection with the discussion of each department. In this matter of earnings of departments, the Committee sees the need of a study to determine where charges can be made for services, which are rendered free by the Commonwealth.

2. DEPARTMENT OF AGRICULTURE

Organization

✓ (a) The Bureau of Statistics and Information should be made a division in the Executive Office, thereby eliminating that bureau.

✓ (b) The field forces of the Department should be studied with a view to combining inspection services wherever possible.

✓ (c) The Market Reporting Offices in Wilkes-Barre and Scranton should be combined so that work will be done in one office.

✓ (d) Within the Department, personnel records should be centralized.

✓ (e) A central storeroom should be set up for the whole department.

3. DEPARTMENT OF FORESTS AND WATERS

Organization

The following changes are recommended in the reorganization of the Department of Forests and Waters:

✓ (a) The Bureau of Accounts should be abolished. The functions should be performed by a section in the Executive Office.

DEPARTMENT OF FORESTS AND WATERS (Cont'd)

(b) The Bureau of Parks, the Bureau of Lands, and the Bureau of Management should be abolished and the functions consolidated into one bureau to be known as the Bureau of Parks and Lands.

(c) The Bureau of Research and Information should be abolished. The functions should be performed by a section in the Executive Office.

(d) The Bureau of Encroachments and the Bureau of Dams should be abolished. The functions of these two bureaus should be performed by one bureau to be known as the Bureau of Encroachments and Dams.

(e) Such a reorganization would eliminate five (5) bureaus, leaving five (5) bureaus. These changes in the organization will promote greater efficiency and reduced costs.

4. DEPARTMENT OF HEALTH

Organization

(a) The Bureau of Public Health Education should be abolished. The functions should be performed by a division in the Bureau of Child Health.

(b) The Division of Rural Sanitation and Housing should be eliminated, with all positions abolished excepting that of Nuisance Officer.

(c) The Bureau of Finance should be abolished. The functions should be performed by a division in the Executive Office. Within that division the Section of Accounts and the Section of Supplies should be consolidated.

(d) For the next two years the function of bottled water inspection should be eliminated.

(e) The possibility of eliminating the County Medical Directors and transferring their duties to the Health Officers is now being studied.

(f) The work of bringing statistics in the Index Section up to date could be postponed for the next biennium.

(g) The Bureau of Field Inspection and Public Health Education are not entitled to the rank of bureaus and should be abolished and be made divisions in the Executive Office.

5. INSURANCE DEPARTMENT

Organization

A separate survey has been made of the Insurance Department by Joseph Marion, completed December 1, 1932, and the recommendations regarding the reorganization of that Department are found in that report.

6. DEPARTMENT OF LABOR AND INDUSTRY

Organization

(a) The Section of Women and Children in the Bureau of Inspection should be eliminated and the functions transferred to the Bureau of Women and Children.

(b) A certain amount of the administrative work of the Workmen's Compensation Board could be carried on by the Bureau of Workmen's Compensation and the work of these two units more closely coordinated.

(c) The administrative activities of the Industrial Board could be carried on in the Bureau of Industrial Standards and the work of these two organizations more closely coordinated.

(d) A separate section for State Building Inspection should be discontinued and the work carried on in each supervising inspection district. All orders should be cleared through one representative in the present building section.

Branch Offices

(e) The branch offices at Altoona and Kane should be consolidated into one office.

(f) The Bureau of Inspection office at Lancaster should be eliminated.

(g) The entire inspection service of the Department of Labor and Industry needs extensive study to prevent duplication and to consolidate the inspection services wherever possible.

(h) The branch offices are over-organized from the fact that employes of the Executive Bureau are stationed at Philadelphia and Pittsburgh to act as "clearing-houses" for certain contacts with the Executive Bureau at Harrisburg. It would be better procedure for each Bureau to clear through its home office to the Executive Bureau at Harrisburg with the possibility of eliminating the Executive Bureau employes at Philadelphia and Pittsburgh.

7. DEPARTMENT OF MILITARY AFFAIRS

Branch Offices

(a) The State Athletic Commission now occupies offices in Philadelphia, Wilkes-Barre and Pittsburgh for which rental of $3,980.00 is paid. The work of these offices should be transferred to Harrisburg with the consequent saving in rental.

(b) The earnings of armories are not what they should be. The opinion of the Committee is that the law requiring armories to turn all of their earnings into the Treasury has taken away the incentive for keeping up receipts to the highest amount possible. The recommendation is made, therefore, that a plan be put into effect which would allow a credit to the armories for a share of the earnings. These moneys should be used for specified purposes.

8. DEPARTMENT OF MINES

Organization

(a) It is unnecessary in a department this size to have two deputy secretary positions. Instead of the present organization there should be two divisions with one of the division heads deputized to act for the Secretary when necessary.

9. DEPARTMENT OF PROPERTY AND SUPPLIES

Organization

(a) There should be only one deputy secretary in the department. The chief engineer of the Bureau of Engineering may be deputized to act if necessary.

(b) The Bureau of Accounting should be abolished. The functions should be performed by a division in the Executive Office.

(c) The Bureau of Engineering needs to be reorganized. Because of the limited construction program for the next biennium very considerable reductions should be made in the number of positions now existing.

(d) The Administrative Code should be changed to permit the State to carry on its own architectural activities if it so desires. With such a change large amounts can be saved by performing architectural services with State architects rather than to pay commissions. If such a change is made the Art Commission should be brought within the organization unit set up to perform the architectural services.

(e) Important changes need to be made in the methods of purchasing now followed by the Department and specific recommendations in that respect are given in the section devoted to purchasing and control of supplies, pages 21 to 38.

(f) Recommendations regarding changes in the methods now used in purchasing fuel will be found in the section devoted to heat, light, power, and fuel, pages 45 to 49.

(g) Large savings could be made if the State maintained its own fund for surety bonds, and workmen's compensation insurance. Before recommendations in this respect are made the problem should have further study.

Branch Offices

(h) One of the branch offices of the Department has been eliminated. The other two branch offices should be eliminated as well.

10. DEPARTMENT OF PUBLIC INSTRUCTION

Organization

(a) An extensive reorganization of the Department is recommended in the following manner:

The Department of Public Instruction should have one deputy instead of five as now organized.

(b) Instead of having eight (8) bureaus as now organized, the Department should be reorganized with three (3) bureaus. The three (3) bureaus should be:

1. Bureau of School Administration and Finance.

Formed by the consolidation of the Bureau of School Administration and the Bureau of Finance and Statistical Research.

2. Examining and Licensing Bureau.

Formed by the consolidation of the Examining and Licensing Bureau and the Teachers Bureau.

3. Curriculum Bureau.

Formed by the consolidation of the Curriculum Bureau, the State Library, the State Museum, and the Vocational Education Bureau.

(c) The Visual Education Section should be entirely eliminated.

(d) The Clipping Bureau should be abandoned and the work transferred to a minor section in the Secretary of the Commonwealth's office.

(e) The administration of parks now administered by the Pennsylvania Historical Commission should be transferred to the Department of Forests and Waters.

(f) The division which includes the work of real estate licensing should

be transferred to the Secretary of the Commonwealth and become a section in that department.

(g) The work of Licensing and Regulating Barbers should be transferred to the Department of Health since the primary function in this respect is a health function.

(h) The appropriation for the Nautical School should be made under the Department of Military Affairs.

(i) The Pre-Professional Credentials Division and the Pre-Professional Examinations Division of the Examining and Licensing Bureau should be combined and the employes graded accordingly.

(j) The Examining and Licensing Bureau should be reorganized under centralized control to eliminate clerical help and unnecessary duplication.

(k) The administration of the work of the State Board of Censors is top heavy. There is a Chairman at $4,800.00, two members at $4,500.00 and an Executive Clerk at $4,000.00 in addition to other employes. The administrative work does not require more than a chairman and executive clerk on a salary basis.

Control of Fees

(l) The present basis of determining the number of assistant county superintendents by county population regardless of whether all of the population falls und their supervision is unsound. The determination should be based on the number of teachers or effective population.

(m) Not enough control has been maintained over fees paid at the institutions for such purposes as:

Lectures and Entertainments
Officials for Games
Orchestras for Dances
Examination of Students
Engineers and Architects

The recommendation is made that these fees be approved in advance by the department.

11. PUBLIC SERVICE COMMISSION

A separate survey of the organization of the Public Service Commission has been made by a committee under the direction of the Chairman, Dr. Clyde L. King.

12. DEPARTMENT OF REVENUE

Organization

(a) The Department of Revenue was reorganized by Dr. Clyde L. King, while Secretary of that Department. In addition to what was done, it is recommended that the Bureau of Institutional Collections be consolidated with the Bureau of Delinquent Accounts with a view to coordinating the field activities of those bureaus.

(b) One branch office would do for two if the Ridgway and Meadville offices were consolidated into one office to be located at Warren.

(c) The present system of collecting Mercantile and Inheritance Taxes is grossly expensive. It is recommended that the payment of fees in the collection of these taxes be discontinued and the salary basis used with a saving of approximately $500,000 per year to the State.

(d) The Purchasing Section and the Equipment and Supplies Section in the Bureau of Administration should be consolidated.

(e) All of the general accounting and administrative functions of the department were placed in the Bureau of Administration and Accounts. It appears that further reorganization should be made within that Bureau with a view to merging some of the sections and coordinating the work of other sections.

(f) More than one stenographer is assigned to certain employes in the Bureau of Liquid Fuels Tax. It would be more advantageous to centralize the stenographic work and not assign more than one stenographer to any one employe.

13. DEPARTMENT OF STATE

Organization

(a) In the Department of State the Elections Bureau and the Commissions Bureau should be abolished. They should be set up as sections under the Bureau of Administration.

(b) In a department the size of the Department of State it is not necessary to have two deputies. One of the bureau heads should be deputized to act for the Secretary when necessary.

14. DEPARTMENT OF WELFARE

Organization

(a) The Bureau of Accounting should be abolished and its work transferred to a division in the Executive Office.

(b) The Orthopaedic Unit should be transferred to the Department of Health so that the work could be coordinated with the work at the Hospital for Crippled Children.

(c) The Bureau of Children should be abolished. The duties should be carried on by a division in the Bureau of Assistance.

(d) The Council for the Blind should be made a division in the Bureau of Assistance.

(e) Because of the large balance in the Manufacturing Fund, it appears that buildings for use by Prison Labor should be constructed from this Fund rather than from the General Fund.

(f) Because one of the chief functions of the Department is the

supervision of the 28 institutions, there should be a Bureau of Institutions with a bureau head to give his sole attention to the problems of supervising the institutions. Such an organization would promote better management of the institutions.

Control of Fees

(g) The payment of fees at the institutions has not been properly controlled. The same recommendation is made here as was made in the case of the Department of Public Instruction, that all fees be approved in advance by the Department before paid.

NOTE: Special committees were appointed to make surveys of business methods in institutions under the Department of Welfare, Health, and Public Instruction. Recommendations resulting from these surveys are given in the reports of those Committees.

IV. PURCHASING AND CONTROL OF SUPPLIES

1. General

In the detailed report which follows, the committee has analyzed certain phases of the present purchasing procedure to call attention to the difficulties and general unsatisfactory conditions that exist. Definite recommendations are made, and a recommended procedure outlined, which will correct these conditions and bring to the Commonwealth the proper advantages of centralized purchasing.

These recommendations will not weaken either fiscal or executive control, but rather will strengthen control along desired lines and eliminate useless control and unnecessary procedures that are costly to the Commonwealth.

The disadvantages of the present system and the advantages and benefits of the proposed procedure may be briefly summarized as follows:

Present Procedure

1. Combines centralized purchasing and centralized ordering.
2. Delays and retards making purchases.
3. Maintains inventories at a much higher level than necessary.
4. Ties up money unnecessarily, due to high inventories and delays.
5. Causes loss in cash discounts.
6. Causes friction and differences between purchasing agency and departments, boards and commissions.
7. Causes increased personnel and high cost of operation.

Proposed Procedure

1. Will direct standardization along well defined program, without increased cost or personnel.
2. Through standardization will cut down the number of types, kinds, and qualities of commodities purchased with consequent reduction in effort and clerical work now required to make purchases.
3. Will strengthen and simplify the management of institutions by making them directly responsible for purchases and funds involved in purchasing.

4. Through standardization will develop proper detailed specifications to protect the Commonwealth and assure it that it will receive exactly what it pays for.

5. Will insure the purchase of commodities of a higher and more uniform quality.

6. Will eliminate delays, and consequent friction and differences.

7. Will enable the taking of all cash discounts.

8. Will result in centralized control and centralized purchasing without the burdens of centralized ordering.

9. Will save approximately $250,000 each biennium in the Department of Property and Supplies alone, now required in the clerical and detail work necessary to carry on under the present system.

10. Will make further savings through increased efficiency and smoothness of operation which cannot be stated in dollars.

Your attention is called to the fact that changes in existing law will be required in many instances to place the proposed plan in effect.

Believing this to be in the province of the Attorney General, your committee has indicated only the procedure to be followed, without definitely reciting the legal authority that will be required to place the plan in practical operation.

The detailed study made by the sub-committee on purchasing has indicated that the present method of centralized purchasing has not been entirely satisfactory to the different departments, especially institutions. While, unquestionably there are decided advantages in the present general method of purchasing, there are also disadvantages which have led to dissatisfaction on the part of the institutions. Much of this has been due to delays in the purchase of supplies and materials and delays in payment, resulting in loss of discount, which have caused differences between the institutions and the Bureau of Standards and Purchases. The committee

believes that much of this delay can be eliminated without sacrifice of control, by changes in methods now in use, as developed fully in the attached report.

2. Standardization

General

The most essential step in perfecting centralized purchase and control lies in the standardization of commodities, the elimination of unnecessary sizes, types and kinds and the setting up of practical specifications for all current or ordinary commodities determined upon as necessary, in the operation of the various departments, boards or commissions.

To effect workable standardization and simplification, four important steps are necessary:

1. Knowledge of all commodities in use by departments, boards or commissions.
2. Cooperative effort on the part of some controlling agency and the departments, boards and commissions, using any commodity which will lead to standardization and such cooperative and intelligent elimination of unnecessary types, kinds or qualities of commodities, as is consistent with approved practice.
3. The setting up of detailed specifications for the predetermined standards upon which the purchase of commodities can be based.
4. The setting up of an agency to enforce agreed upon standards and specifications and pass upon appeals and exceptions to standards adopted.

Your committee makes the following recommendations to put these four basic principles into practical operation.

Standardization Committee

MEMBERSHIP

It is recommended that the Governor appoint a committee of five members, one representative from each of the fiscal officers, one representative from institutions and two representatives from administrative departments, to act as advisory body, in conjunction with the Department of Property and Supplies.

This committee should direct the necessary preliminary work required prior to setting up standards and specifications and after a commodity has been agreed upon as standard, it should approve the standards and specifications for future use. In event of an appeal by any department, board or commission, the committee should have authority to investigate all data and amend such standard, if such action is justified.

APPROVE STANDARDS

The committee should coordinate the work of standardization and act as consultant in determining the proper specification to be adopted. It should have the necessary authority conferred upon it to call upon specialized knowledge, or personnel, available in any administrative department, board or commission, should the need for such service arise. Sufficient authority should be conferred upon it by executive order to enable it to arbitrate and adjust differences that may arise in setting up standards and eliminating sizes, types or kinds and enforce such decisions as it may make.

AUTHORITY

Where supplies, material or equipment are of a technical, scientific or chemical nature and largely used by one department, board or commission, the committee should recognize the special knowledge possessed by that department, board, or commission and largely rely upon its recommendations in setting up a standard, which should be consistent with approved practice as exists for that particular class of work.

SPECIAL STANDARDS

The committee should serve without additional pay or compensation.

Development of Standards and Specifications

The actual work of studying the commodity used, the data upon which to base recommended elimination in sizes and kinds of commodities, the conferring with and cooperation of users and manufacturers of such commodities, the development of detailed specifications and the necessary testing of commodities purchased, should be done by the Department of

GENERAL

Property and Supplies, under the general guidance (except for testing and inspection) of the Standardization Committee.

Immediate steps should be taken by the Department of Property and Supplies to determine the ordinary commodities now in use and lay out a program leading to intelligent standardization. After such a

PROGRAM

study and program have been formulated, standardization under the general guidance of the Standardization Committee should be undertaken as far as possible on related commodities in order that supplies, materials, and equipment may be taken up and disposed of in related groups.

A representative of each department, board and commission using any commodity, should cooperate with the Department of Property and Supplies, and the Department of Property and Supplies should gather all possible information on the different types, sizes or qualities of

COOPERATIVE ACTION

commodities now in use, reduce the unnecessary sizes or types by elimination and simplification. When the representatives of departments, boards or commissions using a major quantity of the commodities have agreed upon the resultant standard or standards detailed specifications should be developed and prepared by the Bureau of Standards and Specifications, which should be presented to the Standardization Committee for formal approval.

If the representatives of the departments, boards or commissions using the major portion of a commodity (except technical, scientific or

UNABLE TO AGREE

chemical supplies, materials or equipment previously referred to) should not reach agreement on a standard within thirty days from the date of submission for approval, the Standardization Committee should be empowered to promulgate such standards as may be required.

As supplies, material and equipment are standardized, catalogues should be prepared by the Department of Property and Supplies grouping related commodities, setting forth the detailed specifications,

CATALOGUES

samples of the approved standard, where practical, together with such cuts, sketches or descriptions as may be required and should assign

identifying symbols or numbers in order to simplify reference and purchase.

At present, standardization in the Department of Property and Supplies has been handicapped in advancement due to lack of proper authority, cooperation, and personnel to properly carry forward a definite program in simplification and standardization.

To advance standardization beyond its present scope, it is recommended that it should be concentrated on current or ordinary commodities in every day use, in order that the great bulk of purchase requirements may be brought under control as rapidly as possible. Special requirements in supplies, material, or equipment should be bought wherever possible on specification, but standardization should not be carried to such a point that control or regulation will cost the Commonwealth more than the value of the results obtained.

The recommended standardization will not require increase in personnel or costs. Results will be obtained by directing such standardization along a definite program, utilizing services now employed in the Commonwealth, and knowledge gained by standardization so far effected.

Commodity Records

Until quite recently, due to lack of personnel, no accurate complete system of commodity record has been maintained by the Bureau of Standards and Purchases. As a result, there is no accurate idea of the number of types, sizes, kinds, or quantities of commodities that have been purchased in the past.

The commodity record is an essential requirement in the operation of any purchasing organization, as it provides a chart of past performance, which enables the purchasing agency to make intelligent purchases for future requirements and also indicates the desirability of the method of purchase to be used.

The present commodity record should be expanded to cover all supplies, materials, or equipment that are purchased on price agreements (scheduled) or individual contracts, together with any other commodities which may be purchased in sufficient quantities or the need for which may occur at such frequent intervals as to justify such a record.

RECOMMENDATION

3. Purchase Classification and Procedure

General

The present method of schedule purchases is not satisfactory. Scheduled items are advertised and awarded in accordance with the law upon the basis of estimated requirements (usually for one year), submitted by all departments, boards, and commissions. As a result the data upon which prices are secured is so indefinite, no quantity being guaranteed, that a vendor has no knowledge of whether a few or many items will be purchased during the life of the schedule and prices are usually quoted accordingly. While the prices so obtained are lower than the open market price, nevertheless, the Commonwealth is not securing all of the price benefit that it should receive in properly planned bulk purchasing, and bulk purchasing cannot be accomplished until the law is changed. In addition so many commodities and varieties of commodities have been placed on schedule that a requisitioning department, board, or commission may requisition a range of varieties, according to its desire or judgment.

SCHEDULES

VARIETIES ON SCHEDULE

The essential duty of a centralized purchasing agency is the securing of favorable prices based upon accurate estimates of requirements for a specified essential commodity meeting with certain approved standards and specifications. Any further control or procedure is unnecessary and usually costly to the Commonwealth.

ESSENTIAL REQUIREMENTS

In the recommendations that follow, for the purpose of classification purchases are considered under four general heads, namely: Individual Contracts, Price Agreements, Proprietary, and Miscellaneous.

Individual Contracts

ACCURATE ESTIMATES

After standardization and simplification have progressed and standards and specifications are adopted for any commodity in common use, the Bureau of Standards and Purchases should secure from all departments, boards or commissions accurate estimates of their requirements for a definite, and preferably a fairly short period of time. These requirements should be received at periodic intervals. The frequency should be dependent upon the class of commodity being considered, but in all cases it is recommended that the requirements be for such a period of time as can be accurately estimated. Upon the receipt of such information proposals should be invited, bids received and individual contracts awarded guaranteeing the purchase of a definite quantity within a definite time, subject to normal variation of possibly ten per cent or more, over or under the contract amount. Each department must agree to assume responsibility of purchase and payment for the amount of their estimated requirements. This procedure will bring to the Commonwealth the benefit of price reduction through guaranteed quantity purchasing.

GUARANTEED QUANTITIES

Through the above procedure, the Bureau of Standards and Purchases should secure a favorable price upon the commodity to be used and it is recommended that all departments, boards, and commissions be authorized to issue their own purchase orders for any commodity for which an individual contract has been entered into by the Bureau of Standards and Purchases.

RECOMMENDATION

Price Agreements

ACCURATE ESTIMATES NOT POSSIBLE

Where the quantity of a commodity in ordinary use does not justify entering into individual contracts, or where accurate estimates cannot be made of future requirements, bids good for a period of one year or less should be received and price agreements entered into guaranteeing the maximum price the vendor will charge for any item, but not guaranteeing a definite quantity to be purchased. In entering into

these price agreements only commodities in ordinary use should be listed after standards and specifications have been approved and unnecessary varities of types and sizes have been eliminated.

Every effort should be made to make all possible purchases under individual contracts and as few commodities on price agreements as conditions will permit and good practice would justify.

RECOMMENDATION

It is recommended that departments, boards and commissions be authorized to issue their own purchase orders for any ordinary commodities which have been placed upon a furnished price agreement by the Bureau of Standards and Purchases. Such price agreements shall not be furnished when based on discounts from catalogue or basic price lists. In the latter case, purchase orders shall be issued by the Department of Property and Supplies.

Proprietary or Special Purchases

COMMODITIES CONSIDERED

There are a number of commodities where competitive purchasing is possible, but where certain conditions demand that a particular type, kind, or quality be purchased, regardless of price competition. Under this head would be grouped medicines, surgical instruments, laboratory supplies, and certain technical equipment.

At present these proprietary commodities are being purchased in the same manner and subject to the same control as all other commodities. In each case, however, the particular brand, type, or size requested is usually purchased, regardless of price competition.

SPECIAL NEED

The committee recognizes the justification of a surgeon to ask for and receive a particular type or kind of surgical instrument, with which he is familiar and in which he has confidence. In like manner, a physican often has confidence in a particular brand of medicine, although other brands may be equally efficient. This element of confidence should not be broken and the committee feels that the particular

type or kind of material requested should be purchased. The same reasoning applies to laboratory supplies (not equipment) and certain technical instruments in which the element of confidence is essential.

RECOMMENDATION

Under these conditions the increased cost of centralized control and regulation of purchasing is unwarranted and it is recommended that departments, boards and commissions be authorized to issue their own purchase orders for this class of proprietary commodity.

MAY STANDARDIZE

The Standardization Committee may set up standards and specifications on any commodities in this class, should such action be deemed advisable and any standardized article may then be placed on individual contract or price agreement and thus brought under further centralized control, as conditions may warrant.

Miscellaneous Purchases

Under this head should be grouped all commodities not covered by the preceding three classes. It will cover all special supplies, material or equipment required at long intervals, the use or need for which cannot be foreseen, or the character of which would warrant it not being placed upon schedule or contract.

RECOMMENDATION

It is recommended that departments, boards, and commissions be authorized to issue their own purchase orders for miscellaneous items referred to, when so authorized by the Department of Property and Supplies, but in no case should such authorization be more than $50 for any one item, provided such items are not contained on individual contracts or price agreements. In such cases at least three quotations must be secured wherever possible.

RECOMMENDATION

Where purchases of this character cost in excess of the amount authorized, it is recommended that the departments, boards and commissions submit requisitions in the present manner, that bids or quotations be received, awards made, and purchase orders issued by the Department of Property and Supplies.

Emergency Purchases

RECOMMENDATION

It is recommended that departments, boards, and commissions be authorized to make emergency purchases up to $100, even though the item purchased may be on individual contract or price agreement, such purchases to be made and reported upon forms furnished by the Department of Property and Supplies, and handled under a procedure to be set up by the Department of Property and Supplies.

Perishable Food Stuffs

RECOMMENDATION

It is recommended that institutions be permitted to issue their own purchase orders for perishable food stuffs in accordance with present practice and procedure.

Method of Payment

PRESENT PROCEDURE

At present invoices are usually sent by the vendor to the Department of Property and Supplies, where they are checked against the purchase order as to price, etc., and a notation placed upon the invoice for the information of the fiscal officers, showing that purchases have been made in a regular manner. Invoices are then sent to the consignee and after approval placed upon a direct requisition for payment.

RECOMMENDATION

It is recommended that invoices be sent directly to the consignee for approval as to receipt of materials, etc., then placed upon a direct requisition by the controlling department and forwarded to the fiscal officers for payment in the usual manner. Serial numbers or other forms of identification should be assigned to all individual contracts, price agreements or quotations received by Property and Supplies, and this identification when placed upon the invoice by the departments, boards or commissions, will give the fiscal officers the required information that the purchase has been made in a legal manner, thus placing the responsibility for checking and auditing all invoices upon the Auditor' General's Department.

Testing and Inspection

The proposed procedure of purchasing on individual contracts will permit arrangements to be made by the Department of Property and Supplies that shipments on such contracts be made at certain specified dates, in order that the Department of Property and Supplies may make the required inspection to determine the conformity of the material furnished with the specifications upon which contract has been based. An efficient and economical system of material inspection and testing should be established under the Department of Property and Supplies. This organization may make the necessary inspections and tests to determine adherence to the specifications, but discretion should be used to the extent that on small shipments costing only a few dollars, where the expense of testing could not be justified, it should be waived, except in cases where doubt exists as to the product meeting specification requirements.

TESTING REQUIRED

It is recommended that in purchases of all supplies, material or equipment bought on specifications, that consideration be given to the submission, with bids, of certificates from approved standard commercial testing laboratories, which would state that the samples submitted conform to the requirements of the Commonwealth's specifications. Such a procedure would tend to eliminate delay in awarding purchases and should obviate the necessity of making tests, except where doubt exists as to conformity with specification requirements.

CERTIFICATES OF CONFORMITY

Records

In all cases where recommendation has been made that departments, boards, and commissions be authorized to issue their own purchase orders, a definite procedure should be set up so that the Bureau of Standards and Purchases may receive a copy of each purchase order issued. This will enable the Bureau to keep a record of purchases made on individual contracts and will also be used in maintaining the recommended commodity records.

COPIES OF ORDERS

Results

REDUCTION IN COST AND PERSONNEL

The recommended purchase procedure should result in eventually eliminating a large part of the clerical work now done by the Bureau of Standards and Purchases, although this reduction will not be immediate, as a large part of the work required by the Bureau at the present time consists of miscellaneous purchases. After standardization and simplification is effected and current commodities are purchased on individual contracts or price agreements, the volume of miscellaneous purchases should be greatly reduced, with a corresponding reduction in personnel in the Bureau of Standards and Purchases.

NO ADDITIONAL COSTS TO DEPARTMENTS

It is not anticipated that the recommended procedure will call for any increased personnel in the departments, boards and commissions. At the present time the departments, boards and commissions must furnish detailed requisitions containing essentially the same information as purchase orders, to the Bureau of Standards and Purchases, and the same force that handles this work should under proper direction be able to issue the purchase orders without any increase in personnel.

RETAIN CONTROL

The recommended procedure will eventually result in a considerable reduction in the cost of centralized purchasing and will give to departments, boards and commissions better service with fewer delays, and at the same time retain the essential advantages under centralized control.

Purchase Committee

PRESENT PROCEDURE

Existing procedure requires the approval of the Board of Public Grounds and Buildings of all purchases made off schedule or contract. The membership of this Board has so much work placed upon them in connection with their regular duties as to delay most of the business requiring its approval.

In making certain agency purchases now the Bureau of Standards and Purchases has received cooperation from the fiscal officers through the appointment of an employe from the office of the State Treasurer and one from the Auditor General, who sit daily on the receipt of bids and quotations and the awarding of contracts with resultant speed in the award of such work.

It is recommended that a purchase committee be created, one member to be appointed by the State Treasurer, one member by the Auditor General and one member by the Governor (preferably from the Department of Property and Supplies). Such a board to sit daily and approve or disapprove all purchases as well as the award of all contracts and price agreements. The membership of this committee should serve without additional pay or compensation and should be responsible, for his actions, to the official by whom he is appointed to represent. Such a procedure would greatly speed up centralized purchasing and would eliminate many delays.

RECOMMENDATION

The present provision of the law, requiring the approval of the Governor, Auditor General, and State Treasurer on contracts should be adhered to, but this approval would be more a matter of formal routine, as each of the officials have a representative on the Purchase Committee to approve of the bids submitted, prior to the award of contracts.

The Board of Public Grounds and Buildings should continue to approve leases, rental agreements and other approvals not directly involved in the purchasing procedure.

4. Appropriations

In order to more fully carry out the purchase procedure recommended, it is felt that the present method of appropriating to the Department

DIRECT APPROPRIATIONS

of Property and Supplies an allocation for the General Fund departments to cover the cost of supplies, material and equipment, be discontinued and that all departments receive the funds required for the purchase of supplies, material and equipment in their direct appropriation. This recommendation is made with two exceptions -

EXCEPTION

First - That the Department of Property and Supplies be appropriated the funds required to cover the purchase of automotive equipment and that this phase of purchasing activity be left directly under the control and operation of the Department of Property and Supplies.

EXCEPTION

Second - That the Department of Property and Supplies continue to purchase the supplies, material and equipment required by the departments, boards, and commissions' offices in Harrisburg. To carry this into effect, it is recommended that a revolving fund of approximately $200,000 be appropriated to the Department of Property and Supplies for the purpose of purchasing such supplies, material and equipment as may be required by the departments located in Harrisburg.

REVOLVING FUND

REIMBURSEMENT

Arrangements should be made which would authorize departments, boards, and commissions to reimburse the Department of Property and Supplies for such supplies, material and equipment, as they are purchased from the revolving fund and assigned to that department, board, or commission.

NON-EXPENDABLE

The proposed revolving fund would be non-expendable in the sense that at the end of the biennium its value would still be $200,000, either in cash, or cash plus stores.

The recommendation to make the appropriations directly to the departments, boards, and commissions will not weaken financial control, but will result in each department controlling through its budget all of the money required to cover its operation. Consideration may be given to the proposal to set up reserves in each department budget in order to insure retention of sufficient money to permit the purchase of the necessary supplies, material, and equipment required.

Proposed method of appropriation will do away with lump sum appropriation for all supplies, and will bring out funds required for this purpose by all administrative and legislative branches of the Commonwealth. It will also lead to more accurate costs of operation, and consequent control.

5. Control of Supplies

The study made by the sub-committee on supplies indicates that the physical control of supplies by the various departments is handled in a more satisfactory manner than general reports had indicated. In order to improve conditions and to have a more uniform system of control, the following recommendations are made:

Requisitions

It is recommended that a requisition officer in each department shall be responsible for final approval of all requisitions. Bureau or functional heads should assist therequisition officer by personally approving or causing to be approved by someone designated by him, requisitions for his organization before they are forwarded to the department requisition officer. A responsible person should be designated to receive all materials, which would embrace careful count and check on materials received and he should be responsible for the custody of supplies until actually used.

Department Storerooms

It is recommended that each department have a central storeroom, unless the supplies required for the department are not of sufficient volume to care for this overhead efficiently and economically. The departments not large enough to have a central storeroom, each bureau or functional unit should make some employe responsible for the distribution and control of

supplies, under the direct supervision of therequisitioning officer of the department.

No article should be removed without a written request, approved by the department and function requisition officers.

A perpetual inventory should be kept.

The quantity inventory should be checked with the p'ysical inventory, preferably on the rotating plan at least once a year.

Consideration should be given to furnishing monthly statements of each bureau or functional head, showing the quantity, item, and cost of all supplies received by the bureau or function, if this work does not require the employment of additional personnel.

The quantity of working supplies in each bureau or function and in the field should be kept to a minimum and sub-storerooms eliminated except where absolutely necessary.

Field Supplies and Equipment

It is recommended that physical inventory of all supplies and equipment should be made at least once a year and compared with the department record. The responsibility of supplies and equipment should be invested in some designated individual.

Accounting Control of Supplies

The proposed method of appropriation directly to the department and the issuance by the departments of their own purchasing orders should do away with some of the existing complications necessary to give proper accounting control of supplies. It is recommended that quantity and value control records be installed as soon as practicable, where such stores accounting records are deemed necessary.

6. Control of Equipment

In general, more control should be exercised by administrative departments, boards and commissions over all classes of equipment. This particularly applies to field offices and institutions.

It is recommended that controlling departments set up detailed record for all equipment; that a perpetual inventory be maintained, checked at least once a year, and sufficient information secured as to locate such equipment at any time.

Steps should be taken to standardize the method of condemning unserviceable equipment and it is recommended that such condemnation for equipment costing in excess of $50.00 when purchased, should require the approval of a designated officer in each department.

V. SURVEY OF HEAT, LIGHT, POWER AND WATER AT STATE INSTITUTIONS

1. Savings Revealed by Field Survey

Tabulation attached presents summaries of savings and deferments possible in twenty-five of the Commonwealth's fifty-one institutions. Each item is coded to a corresponding paragraph in a report of approximately fifty pages describing in detail procedure necessary for accomplishment of each saving or reasons for each deferment. Report summarizes as follows:

Savings accomplishable without expenditure beyond normal maintenance	$ 72,920
Savings accomplishable with new equipment self liquidating within biennium or essential as deferred maintenance	$139,180
Savings accomplishable subject to negotiations with contractors	$ 30,800
Total Savings (25 institutions) operation and maintenance	$242,900

These cited twenty-five institutions spent last year on Account 41, (Light, Heat, Power, etc.,) almost exactly one-half of the total State expenditures under this account. It, therefore, seems reasonable to expect similar operating savings possible in all State institutions and agencies to be approximately double the above, or $485,800. Twenty-five thousand dollars for supervisory engineering services, however, will be essential.

An analysis of actual budget requests for engineering equipment submitted by these twenty-five institutions summarizes as follows:

Actual budget requests	$ 3,251,157.00
Justifiable as self-liquidating within biennium	$ 22,203.00
Essential deferred maintenance though not self-liquidating	$463,500.00
Total justifiable of requests submitted	$510,703.00

Where new equipment will pay for itself from savings in operation and maintenance within a biennium, total biennial expenditures will be no greater than with the continuance of existing wasteful equipment or methods. Such new equipment will continue to pay dividends beyond the biennium throughout its remaining life which on most engineering equipment averages twenty years. This survey has revealed of such desirable expenditures to date unrequested by these twenty-five institutions an additional justifiable capital expenditure of $130,600.

Though it is probable this self-liquidating figure might similarly be advantageously doubled to estimate similar work in the institutions and agencies not yet visited, past experience in other States indicates insufficient engineering talent available of proven money-saving capabilities in institutional work elsewhere to safely attempt much more than the program above indicated within the current biennium.

Though this sum is believed correct within reasonable tolerance, individual cost items must be checked with equipment contractors before further use as time allowed for this survey was inadequate to permit necessary accuracy. Approximately two months will be needed to do this thoroughly. Forty-eight thousand four hundred dollars of this is for coal scales or trucks where present freight rates are exorbitant in comparison with State trucking cost from nearby mines. Time was inadequate to ascertain extent to which use of Department of Highway loaned trucks during winter would make such expenditures unnecessary.

Aside from the justifiable $510,703 cited, the balance of the three and a quarter million of budget requests in these twenty-five institutions divides as follows:

Deferable during coming biennium though desirable	$ 1,449,300.
Unnecessary now or probably at any near future date	$ 1,414,500.

To allow for similar deferments or savings in institutions and agencies not yet visited, not more than twenty-five per cent may be safely added to above figures. In routing this survey preference was given those institutions having largest engineering budget requests listed. Note, however, that budget requests for engineering equipment which will produce no savings in operation or maintenance as well as those demanded by supervisory State departments such as Health or Labor and Industry have not been considered in this survey. Such requests are believed to be a matter for Administrative decision as to whether funds in sight will permit at this time extension or improvements the institutions have gotten along without heretofore.

Except insofar as it relieves the present depression-burdened budget, deferable item of $1,449,300 may not be considered savings. Inasmuch, however, as the institutions can get along without such items for two years, no fixed charges accrue such as depreciation (5%) interest (4%), insurance and miscellaneous (1%), total (10%). Had such charges been applied, corresponding biennial overhead would have been $289,860 which is thus averted.

2. Savings Possible in Engineering and Architectural Fees

More than to any other single reason, however, this $1,414,500 of needless budget requests, and simultaneous failure to include $140,600 of equipment which will pay out in savings within the biennium, is due to present

wasteful, inadequate and incompetent engineering methods. Most of the requests originate from consultants not in permanent employ of the State nor under its control. Each of them looks hopefully forward to the State's standard fee of six per cent (6%) for engineering should such request be granted. Incidentally, this is just about twice the fee percentage obtainable today by individual consultants in industrial practice. No matter how he may feel regarding the economic desirability or otherwise of an expenditure suggested, it is contrary to human nature to expect the consultant to limit his prospective fee and at the same time risk the chance of disfavor by institutional executives in arguing against any expenditures the institution deems desirable. Having all (or nearly all) his fee before the new equipment goes in regular operation no penalty can be assessed for extravagant or even incompetent engineering.

Last year, $142,066. was spent for engineering by the Department of Property and Supplies in connection with contracts for building and construction. This is exclusive of $369,801. spent for architects' fees and additional fees paid by several other departments. For less than half this amount the State could do all its own engineering and have control over the function.

With a thirty million dollar program of institutional additions and betterments last year, according to a press report of Commissioner of Public Works Green of New York State (where all such work is done directly by the State) total engineering and architectural expense was less than two per cent of work done, or about $600,000. Pennsylvania actually paid $511,864.43 last year on outside engineers and architects' fees for a program of less than four and one-half millions. As the standard consultant's fee here is six per cent, this State apparently contracted and had to pay fees of approximately seventy-five per cent of the entire commission on more than double the work it eventually found available funds to complete. This situation arose largely through the action of the Legislature in reducing construction appropriations

at the Special Session. Most of this expense would have been unnecessary had the State done its own design. One-half to two-thirds of the State's entire architectural and engineering expense can be saved by the State doing such work within its own organization and control. Still greater savings would accrue in decreased construction costs made possible by State engineers and architects specializing on and thus most intimately familiar with institutional needs and State procedure.

For the $142,066 actually spent, the State is not getting satisfactory results. Of the quality of some of the poorer grades a few examples speak for themselves.

1. A new $10,000 chimney at Wernersville produces a draft so excessive as to be uneconomical and a nuisance to operation in spite of a perfectly adequate existing stack still standing.

2. At the same institution, four new boiler meters so installed that they give readings meaning absolutely nothing whatever to the operator and only serving to confuse him.

3. Again at the same institution, budget request for $33,000 for new generator for electric bake oven, under operating conditions, which would probably make such an installation tremendously expensive.

4. At Cresson $49,000 put in a boiler installation which cannot operate as economically as the three existing twenty-year old boilers until an additional $8,000 is secured to purchase an adequate stack.

5. At Harrisburg, a turbogenerator which has been costing the State several thousand dollars of needless waste annually because the designing engineer apparently failed to understand comparative operating economies of turbines and engines.

6. At Morganza, an installation last year of a gas engine with natural gas at 45 c/m (corresponding to coal at $12.60 per ton) when local coal costs the institution but $1.38 delivered.

Present wastage in coal purchase and utilization is largely attributable to lack of a State fuels and combustion engineer competent to prescribe the correct coal for each institutional firing condition and sufficiently well versed in coal trade practices to obtain lowest market prices on it and its transportation.

The $30,300 annually saveable by these twenty-five institutions in excessive utility rates discussed in a supplemental report is another penalty of inadequate engineering. Many industrial consultants owe their living principally to their ability to negotiate with utilities more favorable rates than their clients have previously paid. Contrary to the apparent belief in many of our institutions that a rate filed with the utility commission is fixed and inviolate, such consultants work on the theory that where one rate has been filed another can be. In state practices this principle is especially important. Reserving to itself the rate regulatory function, the State is unique as a purchaser of utility service.

Any rate whatsoever may be quoted to the State without the necessity of its bearing even a seeming resemblance to the Company's general rate structure. Obviously under the circumstances no utility contracts should ever be signed without the approval of State engineers experienced and competent in negotiating favorable rates with utilities.

It may be correctly contended that budget "savings and defernents" cited herein do not represent true budget reductions. Corresponding sums would unquestionably have to be deducted due to lack of funds. New York State and Ohio, however, find such field surveys of engineering budget requests essential prior to every budget. Investigators attached to the

budget office throughout the year visit each institution making available to the budget director at the hearings an intimate knowledge of the necessity or otherwise of each item requested, its relative urgency compared with the requests of other institutions, self-liquidating possibilities, danger, if any, of crippling institutional service through possible denial and a double check on the adequacy or otherwise of each estimate. Where the experience of the inspector indicates possibilities for operating savings with self-liquidating expenditures not previously apparent to the institutions, corresponding budget requests are initiated. It is interesting to note that certain Pennsylvania items discussed herein have been reported by the institutions as repetitions of previous budget requests for, in some cases, as many as five preceding bienniums. With proper survey the permanent organization of the budget office can prevent useless repetitions of needless budget requests and correspondingly the possibility of their eventual passage through good salesmanship of the institution or lack of complete understanding of the circumstances by some succeeding Administration. Several of the institutions visited have acquired and installed in this manner, merely due to the technical nature of the problems involved, excess equipment, the funds for which might unquestionably have been utilized to accomplish worthwhile operating economies elsewhere.

3. Savings in Coal Purchasing and Utilization

To date, records, yet incomplete, have been obtained of State coal purchases of a total of 235,000 tons for the past year. This having been a rather mild winter, it is safe to estimate average total State coal purchases of approximately a million dollars per year. Under present methods more than one hundred and twenty-five individuals buy this coal. Very few of them are intimately familiar with trade customs and practices in this seemingly simple but actually involved, tricky and technical field. None of them have had

experience in prescribing the most economical coal to a given set of firing conditions.

As a result, true competitive coal purchasing is substantially non-existent. In a hurried analysis of about fifty existing coal contracts there were nearly as many instances of contracts being placed with the highest bidder as were placed with the lowest. None of the institutions are making an adequate check on the quality of the coal delivered and most of them make no check at all.

Aside from certain contractors now enjoying State contracts who might hardly be expected to speak with utmost candor, consensus of opinion of operators interviewed indicates a unanimous feeling that present State coal purchase methods are in an untenably chaotic condition. As badly as coal business is needed today, many of them make no effort to quote on State bid requests. The following typical cases of indefensible coal purchase methods are cited:

1. Two-thirds of all contracts analyzed contain either no coal specifications or entirely inadequate ones. In the instances where specifications <u>are</u> given, they have generally been offered voluntarily by bidders and are not guaranteed nor contained in the contract or order.

2. In over half those seen contractors are at liberty to furnish coals of any ash, sulphur or heat content they can deliver at least cost to themselves.

3. In some instances even size is omitted so contractor has option of delivering either run of mine at $1.00 - $1.50 or slack at $.45 - $.80.

4. In some instances, whether price is FOB mine or institution, is not stated in contract.

5. One contract includes two run of mine bituminous coals, one at $3.40, the other at $3.90 - dealer's option as to which he shall furnish.

6. One institution states frankly they do not invite competition - purchasing a car at a time as needed.

7. Out of five bids received by another, no size being mentioned in the inquiry, only one bidder quoted on nut coal and he received the order.

8. One institution buys its annual requirements by the bushel as a unit of measurement.

9. Another in renewing a contract, warns vendor that previous deliveries have been unsatisfactory.

10. Sized anthracite is used in a small western institution at from $11.30 to $12.05 when most similar small users consider Pennsylvania Low Volatile at half the price a luxury fuel.

11. In ninety per cent of the institutions, bills for expensive sized coals will run from twenty to forty per cent of the total fuel bill though equipment capable of burning the cheaper sizes has been available on the market for eight years past.

12. One decision between two bids of equal price was made by lot - contract being placed with a high sulphur coal with no BTU specified as opposed to a low sulphur coal showing high BTU.

13. Penalties assessed in one department's specifications have never actually been assessed more than four times in one buyer's ten years of experience. One institution contracting coal from one mine is receiving it from another.

Unless an institution has previously burned a cheaper size, the institution chief engineer is apparently the sole judge whether .80¢ slack or $1.50 run of mine, whether $1.00 birdseye or $3.00 buckwheat shall be bought. Natually they pick the more expensive size which makes them the least work. Orders and contracts are dated throughout the year and frequently disregard summer low price conditions.

To correct these conditions and thereby to cut the State's coal bill approximately $300,000.00 per year it is recommended that a uniform State request for bids, coal contract, and specifications be prepared (first) for the various grades of bituminous and (second) for the various grades of anthracite covering all commercial sizes purchased by the State and such form used in the future by all departments, boards, and commissions, on all coal purchases.

If it is practically possible revise immediately, Section 307 - Paragraph "C", Section 2403 - Paragraph "E", and Section 2409 - Page 149 of The Administrative Code, giving authority to departments, boards, and commissions, to purchase fuel for use in State institutions. Responsibility for coal contracts and utilization would then be concentrated under one buyer in the Department of Property and Supplies. To do the job properly there should be a special coal buyer. This man must have had at least five years experience in the purchase of at least 200,000 tons of coal annually. He should be an engineer capable of prescribing a proper coal to any given set of firing conditions. A former railroad fuel agent or purchasing agent for a Pennsylvania coal jobber would be the type required.

There is usually one time of the year when best coal contract prices can be obtained. This generally is around the first of May for antracite and around the middle of June for bituminous.

For the first six months after this system is put into operation a competent coal sampler should be borrowed from the United States Bureau of Mines or the State Department of Mines whose duties will consist of covering institutions at the rate of about two per day, continuously taking coal samples

as a basis for billing and at the same time teaching institutional chief eingineers how to make their own samples correctly after this sampler leaves this work. This system is now in use by the Federal Government. The Government pays such a man between $150.00 and $200.00 per month and he can doubtless be borrowed by the State at his Government rate. No coal should be paid for until the analysis is received, thereby permitting final payment based on the system of penalties and bonuses which shall be included in the proposed contract form.

Should it not be desirable to immediately revise the "Administrative Code" the same personnel should be employed and in general the same procedure followed. Any form of coal contract, however, which produces a quality coal at a minimum price requires more technical knowledge than can be expected in the institutions. It has been the experience in Ohio and New York State that generally after the first letting - Boards of Trustees who have utilized the services of the State Coal Expert and have been convinced that he knows his business are usually quite willing thereafter to turn over subsequent purchases to him.

4. Savings with Meters and Performance Control

While it is not impossible to obtain the majority of fuel savings listed in attached tabulation without adequate metering and control equipment, it will require at least double the time to accomplish many of them with little assurance of their continuance should supervision be relaxed. In spending a million dollars a year for coal, the minimum of information essential to continued economical operation in each institution is as follows:

1. Amount of coal fed to boilers each shift (necessitating scales)
2. Total amount of steam generated each shift (necessitating steam flow meters)
3. Temperature of boiler feedwater (recording thermometer)
4. Boiler drafts (necessitating draft guages)
5. Boiler efficiency (necessitating steam flow-airflow or CO_2 meters)
6. Steam used in generation of electricity (steam flow meter)
7. Electricity output (Kilowatt hour meter)

Most Pennsylvania institutions do not have such meters. As a result no institution except Cresson yet visited keeps power house operating record logs: hence, neither the superintendent nor the chief engineer have the vaguest idea as to the efficiency with which the plant is operating. The most inexcusable wastes may continue and in some cases observed have been continuing for years without the slightest realization of their existence. If the items of steam per pound of coal, steam per kilowatt hour, drafts and CO_2 were regularly reported by the chief engineer to the superintendent, most such wastes would almost automatically be corrected within a day or two after their first appearance.

The above indicated instruments by no means constitute a complete nor even an adequate complement. Automatic equipment for the regulation of draft and fuel flow with varying steam and electrical demands is generally equally essential and in some cases more so. Meters to measure boiler feedwater, flue gas temperatures and many others are considered integral essentials of the modern economically operated power plants. An axiom of power house operation is that such equipment properly utilized will always pay for itself from savings within a biennium and generally within a year.

No item for such equipment, however, has been included in the tabulation, first, because time was insufficient to make the analysis and secure the prices of equipment for such installation, and second, because the total sum so needed is beyond the expectable limitations of the present budget. If, however, a total lump sum figure of $50,000 for power house meters and control equipment could yet be inserted in the present budget to cover the most urgent needs of the larger and least efficient of the institutions subject to later survey, it would be productive of large savings.

5. Savings in Supplies and Repairs

Savings in many State expenditures became apparent during this survey, the extent of which could not be determined, due to time limitations and lack of ready availability of institutional records. As a result such items have not

been included in the tabulation.

The State now buys annually approximately one hundred thousand dollars' worth of electric lamp bulbs. Owing to inclusion of a Federal lamp specification in the contract, the State is guaranteed an average life of one thousand hours. This is about two and three quarter hours per day for one year. Survey indications are that the State is not at present securing half that life. This may be caused by:

1. Defective workmanship, material or design of bulbs
2. Poor voltage regulation of electric generators
3. Carelessness of State employes in handling and replacing bulbs
4. Theft of bulbs.

It seems reasonably certain a detailed study of this situation and its causes might reveal savings of from $20,000 to $40,000.

In the purchase of repairs and replacements, the widest variances are apparent among various institutions. Gray iron castings for grate bars at Philadelphia Penitentiary cost fifteen cents ($.15) per pound, Farview, ten cents ($.10) per pound, and Allentown, five cents ($.05) per pound.

There is ample reason to believe that total savings of $50,000 annually might be obtainable from competent technical supervision of engineering supply and repair items alone.

6. Savings in Operating Practices

By no means all operating savings opportunities have been covered in the limited scope of this survey. A few additional are cited below.

1. The State of New Jersey has within the past year purchased for all its institutions, inexpensive boiler water testing apparatus. Instead of the use of expensive boiler compounds of doubtful efficiency as in this State, with large quantities of valuable hot water constantly blown from the boilers or dangerous heat insulating scale formations within them, New Jersey employes a chemical engineer to prescribe the

correct quantities of inexpensive chemicals such as lime and soda ash to produce economical operating results with considerable profit to the State. Here existing State laboratories might be used to cooperate with institutional chief engineers to the same end.

2. A few of the Pennsylvania institutions have accomplished or are accomplishing commendable economies by the flattening out of their steam and electrical demands. Off-peak operation of baking and pumping loads and many others of similar deferable character offer interesting savings opportunities.

3. Many institutions have boilers passed for 160 pounds and 200 pounds pressure, yet are only operating their engines at from 100 to 125 pounds. At the higher pressures allowable, these engines often require ten per cent less steam than at present operating pressures. Increase of pressure might in many instances save thousands of dollars' worth of steam now exhausted to atmosphere in summer, spring and fall.

4. Based on its fuel value, electricity or gas for cooking or heating will cost from five to ten times the cost of the equivalent heat in steam. Steam cooking, baking, etc., is extensively and satisfactorily utilized in the vast majority of public institutions. Each installation with more expensive heating media should be made to show incontrovertible cause for its continued usage. Some of our State Institutions are paying $1.00 to $1.50 per thousand cubic feet for manufactured gas - an exorbitantly expensive fuel, when used in the quantities at present employed by some of our Eastern and Central State Institutions.

5. A number of State boilers show too rapid depreciation from corrosion and pitting. A new compound or paint "Apexior", has been

developed in recent years to correct this. Many large engineering concerns have adopted applications of this compound in all their boiler plants as standard.

6. An astonishing variance between the water usage at the various institutions deserves further intensive study. The gallons per capita day vary from approximately fifty, which is an average domestic figure, up to 300 to 375 gallons, in some cases. The vast majority of our largest institutions will exceed two hundred gallons per capita day or four times the average domestic usage. Probable causes are continuous flushing of toilets and wash basins, failure to turn off faucets, and general carelessness of inmates and employes. A large proportion of present wastage with proper care is preventable.

It is estimated that careful study of these and other similar operating practices might easily lend themselves to a total saving of at least $100,000 annually.

7. Savings in Boiler Insurance

Large savings are possible if the State should discontinue the carrying of boiler insurance under private coverage and place the insurance on the present basis of handling fire insurance. Boiler inspection could be made by the Department of Labor and Industry with present forces.

8. Summary of Total Savings Estimates

Possible operating account savings in technological services, supplies and equipment, summarize approximately as follows:

1.	Field Survey Economies	$ 435,000.00
2.	Engineering and Architectural Services	200,000.00
3.	Coal Purchasing and Utilization	Included in Item 1
4.	Instrumentation and Control	Included in Item 1
5.	Technical Supplies and Repairs	50,000.00
6.	Operating Practices	100,000.00
7.	Boiler and Other Insurance	25,000.00
	Total Possible Operating Account Savings	$ 860,000.00

Although it would permit accomplishment of a greater portion of this entire savings within the coming year if a somewhat larger appropriation were permissible at the start, the sum of $25,000 suggested for the first year's supervisory services should possibly make possible the accomplishment of nearly half of the total possibilities cited.

Budget reductions indicated in this report follow:

Deferments permissible coming biennium	$ 1,449,500.00
Unnecessary equipment requests	1,414,500.00
TOTALS	$ 2,863,000.00

Above is from a total of engineering budget requests of $3,242,657.00 now on file in the Budget Office from the twenty-five state Institutions visited during this survey.

9. Policies in Starting Savings Campaign

Past experience in other States indicate disclosure to institutions of individual savings items, as listed in attached tabulation at this time, will prove an obstacle to their eventual accomplishment. Unaided it will be virtually impossible for the institutions to accomplish these savings without cooperation of experienced technical supervisors. Were this not true, most of these savings would have been accomplished years ago. No one can doubt the sincerity and honesty of the institutions' efforts and intentions towards strictest economy within the technical limitations of their personnel, the higher-salaried of whom are specialists along other lines.

Until each savings can be fully indicated, individually, to each institution or department (and time limitations of this survey did not permit this), it will serve but to give unintentional offense to flaunt in their faces these suggestions. After the institution sufficiently understands all phases of each proposed saving and can conscientiously adopt it as their own idea, it is felt that the unremitting cooperation which is essential to successful and permanent accomplishments will be wholeheartedly extended.

VI. UTILITY RATES AT STATE INSTITUTIONS

(Preliminary Report)

1. Methods Used for Making Rate Comparisons

Wide discrepancies exist between certain of the utility rates applying to State Institutions within this State and in neighboring states. Differences of annual bills for equal energy consumptions and demands in cities, towns and institutions of equal class might be expected as high as ten or twenty percent on account of longer fuel hauls or differing service conditions. When, however, bills for equal service in low cost production areas become from fifty to one hundred percent higher than in less favored locations, as shown on attached tabulations, need of early investigation of and rectification by the State's regulatory Commission seem indicated.

Upon first noticing these conditions during the one month's hurried survey of institutional technical services in the field, your Committee requested several of the Departments operating institutions to communicate with corresponding Departments in neighboring States in an endeavor to secure any or all utility rates being paid by them. To the date of this writing, however, no usable data has been received.

The severe limitations of time available to your Committee and apparent lack of immediate availability of such rates at neighboring Capitols has, therefore, limited comparisons of this report to the few rates immediately obtainable. Again, lack of adequate metering facilities to measure electrical demands at many Pennsylvania institutions necessitate estimates of such figures based on known data of similar

institutions elsewhere. As no great degree of comprehensiveness is claimed for this report, however, a limited number of examples have been purposely chosen of such wide variations that no reasonably expectable inaccuracy of such estimate could materially alter the conclusions.

In each case the actual service consumed and last annual bill as reported by the Pennsylvania institutions are as shown in the tabulations. Against this are listed for the same quantities of service what the billings would have been had the lower rates enjoyed by corresponding state institutions elsewhere been applied. In every case, schedules have been chosen for these comparisons having no known qualification as filed prohibiting their application to the service actually rendered.

2. Special Rates to State Institutions

Just, however, as stepped utility demand rates frequently work out to give very low average kilowatt hour costs to certain specially desirable industrial customers who might otherwise install isolated plants, there have been included in this tabulation certain rates filed especially for State Institutions only.

The Wooster, Ohio, rate is such a special institutional rate. Though the demand and consumption specified are quite obviously "cut to fit" the local State Institutions, there is every reason to expect that were the Torrance or Rockview institutions located at Wooster, the same schedule will be equally applicable.

The fact that the State, reserving to itself the rate regulating function, is in a unique position as a purchaser of utility service, which has apparently not been so far recognized in this State as it has in others. Entirely legally any utility may file for the State only, any rate it may choose, even though it is entirely unrelated to its general rate structure.

In New York, institutional rates are not even filed with the Utilities Commission until after the contract has been executed. If this principle were widely called to the attention of utilities serving or able to serve Pennsylvania institutions, it might prove most helpful to budget balancing activities, as well as possibly rendering unnecessary costly revaluation proceedings with such utilities looking toward general reductions in rate structures which might prove essential were the present exorbitant rates continued.

As of incidental interest, in each of the tabulations have been included calculations of what each bill would have cost the State had each of the institutions cited had its own plant operating at average actual costs of other Pennsylvania institutional plants at which these costs are recorded. In these figures fixed charges have not been included for, as is well known, State books never include fixed charges. Actual State generated power costs were plants built at these institutions, in some cases would be higher and in some lower than the averages here cited. The advisability of construction of State plants at such points would, of course, be a matter of detailed calculations to fit the conditions at each institution and would be vitally dependent on whether the State finances would permit of such expenditures, even though they might be self liquidating in five to ten years.

3. New Equipment Purchases from Savings Accomplished

Millions of dollars worth of new power plant equipment are today being installed and have been for years in industries by power plant equipment manufactures, many of whom agree to take their pay for new equipment from the operating savings, which such equipment will accomplish. Under

present State law, it is not possible for the State to take advantage of such arrangements, for such contingency contracts are now legally ultra vires. Now that State revenues for additions and betterments are scarce or non-existent, it is considered a most opportune time to introduce enabling legislation which would permit the State to take advantage of such opportunities of which industry has long availed itself. Should the Governor desire, this Committee will draft suggested legislation which would permit the State accepting such machinery purchases to be paid from the operating savings, thereby relieving the budget of such desirable expenditures, for which no funds are immediately available.

4. Scope of Tabulated Comparisons

By no means all of the institutional situations demanding rate revisions are cited in the following tables. To keep this report as concise and understandable as possible, only the minimum possible number of typical instances of the more exorbitant kind have been selected. More electric comparisons are offered than of water and gas, not because of a worse electric situation, but because greater complexities of electricity rate structures make rate comparisons that incontestibly fit each condition more difficult. In the water comparison, only three institutions are cited - one large, one medium and one a small water purchaser.

Water and gas rates which are generally billed on block or straight line meter rates lend themselves more freely to comparisons between widely separated communities than do electricity rates on demand schedules. In the latter, numerous simultaneously occurring variables can be and generally are included, such as demands, energy usage, load factor, power factor, meter rental, coal cost, class of service, etc. Skillful use of combinations of these factors describing highly competitive

or particularly desirable business in a given community permits preferential rates to such business without causing the utility embarrassments of more easily obtainable business elsewhere. Electricity rate structures are usually fairly obviously "cut to fit" the particular conditions in a given community. Only where unusually wide rate variations exist as in the cited illustrations does the lack of uniformity become apparent. Were it possible to compare on the basis of actual average costs per kilowatt hour between various institutions, disregarding the restrictive limitations in applying schedules, many more illustrations of even wider variations would be possible.

There are many other interesting features of this study which cannot be displayed in tabular form. For example, at Torrance State Hospital, the Pennsylvania Electric Company have had the business with several subsequent contract modifications to the company's interest since 1922. At Indiana, fifteen miles away, the same company are now negotiating for the business of the State Teachers College on another and lower rate. Were the Indiana rate offered applied at Torrance the State's energy cost would be approximately ten percent less than was actually paid last year. In New York State, the New York Power and Light Company have a special institutional rate filed. Were this applied at Torrance, State costs would have been less by sixty-four percent what they actually were.

5. Multiplication of Metering

At Bloomsburg State Teachers College, electricity serving the institution is billed on five different meters at five different schedules, each containing a minimum charge. Had it all been billed on the one minimum effective schedule applying, and advantage taken of load diversity between day power and night lighting, the bill would have been at least twenty percent lower than it actually was.

At California Teachers College electricity is billed on six different meters and three different schedules. Had they been lumped on the minimum effective schedule applying, the State's bill would have been twenty percent lower. By the use of these minimum charges applying to the different rates average costs per kilowatt hour last January on the six meters figured out in cents per kilowatt respectively, 1.96 - 3.57 - 3.36 - 4.32 - 6.67 and 14.7 cents. Last July the State paid in average cost 2.23 - 3.25 - 5.4 - 5.57 - 5.64 and 36 cents per kilowatt hour respectively.

Were unrestricted multiplication of metering permitted by the Utilities Commission with minimum chargeable in each case, by installing a six to ten dollar watthour meter on each and every motor or lamp, the utility might easily collect from other users thirty-six cents and upward per kilowatt hour as here demonstrated.

6. Coal Freight Rates

It is quite probable a similar study, if time permitted, of coal freight tariffs to various Pennsylvania institutions would reveal corresponding variations in comparison with those enjoyed by neighboring coal producing states. Morganza, whose coal supplier is within two miles of the Institution, pays $.82 freight rate. Rockview is near local coal mines and pays $1.07 freight. The Ohio State Institutions, Athens and Lancaster, similarly near coal areas,are enjoying rates of $.37 and $.67. From consultant's recollection, it is probable that the average of Pennsylvania institutional coal tariffs with coal practically all over the State will probably prove at least ten percent higher than the average of Ohio institutional rates with coal on the eastern and southern borders only. Further time for study of this entire situation is indicated.

APPROXIMATE COMPARATIVE COSTS OF ELECTRICITY AT VARIOUS STATE INSTITUTIONS
WITHIN THE STATE AND IN NEIGHBORING STATES
WITH EQUAL CONSUMPTIONS AND DEMANDS

Institution	Average K. W. H. Per Mo.	Demand K. W.	Last Annual Bill	Bowling Green Teachers College	Wooster, O. State Univ. Ag.Exp.Sta.	Erie, Pa. Soldiers & Sailors Home	Gratersford New Eastern Penitentiary	Av. Cost to State (fixed charges excluded) at Mt. Alto-Cresson & Hamburg - Only Insts. with Complete Records 1.25 c/ K. W. H.
				(Note: Figures under these heads are obtained by applying the rate of their schedules to the consumption of Institutions listed to far left column.)				
West Chester Teachers Col.	4450	54	$2179.38	$945.00		$1690.00		
Laurelton State Village	9490	80[2]	3379.87	1750.00		2910.00		$1425.00
Bloomsburg Teachers Col.	11,251	100[2]	5124.13	2150.00		3225.00		1690.00
Kutztown Teachers Col.	11,364	100[2]	5238.22	2065.00		3250.00		1705.00
California Teachers Col.	16,370[1]	125[2]	5533.59	2910.00		4450.00		2455.00
Torrance State Hosp.	21,708	55	7033.30	3445.00	3910.00	4165.00		3260.00
Rockview Penitentiary	33,430	150[2]	12034.72	5955.00	6020.00	7600.00	8300.00	5015.00
Capitol Group	250,000	1360	43500.00	39456.00				

1 Calculated

2 Demand estimated

3 Where institution is now buying low tension service and is compared with high tension rates elsewhere, 5% has been added to calculated bill to cover transformer losses

Note: Where no corresponding bill has been calculated, it should be understood that rate schedule in question is so filed as to

COMPARATIVE COSTS OF WATER AT VARIOUS STATE INSTITUTIONS WITHIN THE STATE AND IN OHIO WITH EQUAL CONSUMPTION

Institution	Av. Monthly Consumption M Gals.	Actual Last Annual Bill $	Columbus, O School for Deaf Munic.Wtr.Pl.	Fremont, O Hayes State Memorial Munic. Wtr.Pl.	Bloomsburg Teachers College Private Co.	Torrance or Cresson Hosp. Private Co.	Av. Cost to State (fixed charges excluded) at Morganza & Cresson-only Insts. where costs are available @ 4 c/M gal.
Scranton Oral School	181	800 (approx)	347.52	346.44	319.20	434.40	Inapplicable
California Teachers Col.	922	3496.70	1711.44	1425.48	1071.12	2212.80	Inapplicable, however California could pump own water for approx. $1000 annually
Indiana Teachers Col.	2580	8823.56	4689.60	3801.00	2662.80	6192.00	1238.40

COMPARATIVE COSTS OF LOCAL NATURAL GAS
WITHIN THE STATE AND IN OHIO
WITH EQUAL CONSUMPTION

Institution	Annual Gas Useage M. Cu.Ft.	Last Year's Gas Bill	Wooster, O. Ohio State Univ. Agr. Exp. Sta. 25 C/M Cu. Ft.
California Teachers College	63,629	$28,633.05	$15,907.25
Morganza Training School	2,296	918.40	574

Above comparisons are only of institutions having local gas wells in immediate vicinity (1-3 miles) of the institution.

Where gas is piped 5-7 miles, instead of 40 and 45 cent rates as above at Morganza and California, rates become higher, for example

Last Year's Bill		Cost per M.Cu.Ft.
$2,057.43	Western Penitentiary, Pittsburgh	50
1,190.00	State Teachers College, Indiana	51
7,374.83	Polk State School	62½

Mansfield Teachers College is also understood to have local gas while Bloomsburg Hospital has it within a few miles. Data is not available on these institutions.

This provides 10 to 12½ cents additional per M. cu. ft. for pumping costs and pipe line fixed charges and repair.

Present day cost of rig, drilling well and casing averages $2500 to $3500. With present available Geological Surveys chance of drilling a dry hole is not one in ten. Nearly any well will supply more gas than is used by our largest institutions and some of them produce ten years and more dependent on rock pressure. Cost of 3 to 4 inch pipe line laid 18 inches underground would not exceed $2500 per mile if prison or training school labor were employed.

It is suggested that the State Geological Survey be requested to make a study of the advisability and cost of drilling gas wells at various institutions in the western section of the State and in Tioga County. It is also suggested that further investigation be made at institutions at or near gas pools to see whether or not the State could not enter directly into contract with gas well owners thereby eliminating what would seem to be an excessive

profit now secured by the large gas distributing corporations. Possibly also these gas distributing corporations might be induced to make combined rates for a group of institutions as we understand is the custom when selling gas to steel companies with several different plants.

SUPPLEMENT

TO

REPORT ON INSTITUTIONAL UTILITY RATES

Within twenty-four hours before this report is due for final presentation, certain additional data has arrived from Pennsylvania institutions and from neighboring State institutions throwing additional light on this subject. As at least a week would be required for the calculations necessary for a complete comparison, only a few of the more interesting sidelights will be attempted herein.

WATER RATES

Pennsylvania institutional water rates in institutions visited to date fall into two distinct rate groups. In each case average rates are given as calculated from last year's actual bill in cents per thousand gallons.

Low Rate Group		High Rate Group	
West Chester	10.4¢	Torrance	20.0¢
Bloomsburg	10.5¢	Cresson	20.0¢
Kutztown	13.0¢	Indiana	28.2¢
Allentown - Flat Rate of $2.50 per month		California	31 - 31½¢
		Scranton Oral	42

Scranton Hospital at 18.9¢ represents an approximate medium between groups.

It is interesting to speculate why, for the same one thousand gallons of water, one Teachers College (California) should pay three times the rate of two others (West Chester and Bloomsburg).

From neighboring States, there are now available, institutional rates from twelve educational institutions and three mental hospitals in New York and from four educational institutions in Ohio. With only one exception, the highest of these nineteen neighboring State rates is lower than the lowest of the high rate group listed above. The average of these neighboring State rates will approximately equal the average of the Pennsylvania low rate group.

ELECTRICITY RATES

To anticipate needless controversy that higher electrical rates at the high rate Pennsylvania institutions cited are due to higher coal tariffs to these communities, freight rates actually being paid at all institutions compared are listed below. (The six cent emergency charge applying to all rates is omitted for this comparison).

High Electricity Rate Group		Low Electricity Rate Group	
West Chester	$2.27	Bowling Green, Ohio	$1.89
Laurelton	2.03	Wooster, Ohio	1.51
Bloomsburg	1.64	Erie, Pa.	2.08
Kutztown	1.89	Graterford, Pa. (Est)	2.00
California	.63	Albany, N.Y. or Comstock, N.Y.	5.22
Torrance	1.01		
Rockview	1.01	Average Coal Freight Rate	2.14
Harrisburg	1.76		
Average Coal Freight Rate	$1.53		

The New York State institutional electricity rate quoted by the New York Power and Light Company has not yet been received in spite of strenuous efforts to obtain it. It is now being offered at Great Meadow Prison, Comstock, N.Y., and is the rate which would apply at the Albany State Capitol if New York did not deem it cheaper to generate their own current. Friends at Albany, however, have loaned us the State's complete file on the Comstock negotiation. The original of a letter dated February 4, 1932, to Commissioner of Correction Thayer from John L. Haley, Vice-President of New York Power and Light Company, now before us, contains the following: "This (Electric Company's proposal) gives a resultant total cost of $21,621.00 for a total of 2,100,480 kilowatt hours per year, or an average unit price of approximately one cent per kilowatt hour".

The Harrisburg Capitol Group now uses approximately 3,000,000 kilowatt hours per year at an average unit price of 1.45 cents per kilowatt hour.

Were the Comstock-Albany rate applied to our Capitol bill, same would have been approximately $13,500 or thirty-one per cent less than it actually was. Note also that the Capitol Group consumption is nearly fifty per cent larger at present higher rate.

Applicable to the situation at Torrance, Commissioner of Mental Hygiene Parsons of New York in a letter of November 2[illegible], 1932 to Deputy Secretary Hunt of Pennsylvania after advising that all New York Mental Hospitals generate their own electricity states: "There is one exception however, and at that institution, which uses large quantities of current, the rate is two cents per K. W. The Department believes this rate is excessive and as the contract is about to expire it proposes to generate its own current unless the rate is reduced to one cent per K. W. Where there is use for exhaust steam (as in nearly all State hospitals) we estimate the generating cost is one cent per K.W. This rate takes into account interest and depreciation charges as well as labor".

Torrance actually paid last year an average rate of 2.72 cents on an electrical bill of $7,033. If Pennsylvania could enjoy the purchase electricity rate which New York now proposes to reject as exorbitant, our bill would have been approximately $1,800 or twenty-six per cent less than it actually was.

Purchase electricity rates in eight New York educational institutions have apparently been copied by an official unfamiliar with rate schedules and hence are not available in useable form. Rates furnished from New Jersey indicate that State in general worse off than Pennsylvania which is far from surprising to anyone familiar with the utility situation there.

Referring to the charts of original report, where demand meters were not available at certain institutions, the demand figure was estimated. To avoid accusation of bias in making comparisons, attempt was made to estimate these demands conservatively high rather than too low, thereby making the comparison most favorable to the utility's case and least favorable to the State's case for rate reduction. That these efforts toward conservative fair play were successful is evidenced by information since received from two of these utilities via the two institutions they serve. At Kutztown where tabulation estimates a demand of 100 K. W. the utility serving the College estimates 80 K. W. At Laurelton against a tabulation estimate of 80 K. W. the Utility estimates 50 to 57. Were time available to recal-

culate the chart, therefore, the bills on the low rates used for comparison would be still lower than are now shown.

COAL FREIGHT RATES

As anticipated in the original report on this subject, an average of freight rates furnished by Ohio's State Purchasing Agent to thirty-four Ohio State institutions is $1,316. Like Pennsylvania, Ohio's institutions are scattered uniformly over the State. Ohio's coal field however, cover only the Eastern third of the State. With bituminous fields covering nearly the entire western half of the State, and anthracite fields centrally located to most of the Eastern half, Pennsylvania's average institutional coal rate is $1,465. The difference is 14.9 cents per ton or twelve per cent in Ohio's favor. Applied to approximately a quarter million tons of State coal purchased this would mean a difference of approximately $37,000.

POSSIBLE SAVINGS IN TWENTY-FIVE STATE INSTITUTIONS

IN OPERATING ACCOUNTS AND ON CURRENT BUDGET REQUESTS

Code Reference	Institution and Item	OPERATING ECONOMIES: Savings Accomplishable Without Expenditures Beyond Normal Maintenance A	Estimated Supervisory Time Required (Man Days) B	Savings Accomplishable With New Equipment Self Liquidating Within Biennium Or Essential Deferred Maintenance C	Savings Accomplishable Subject To Negotiations With Contractors D	BUDGET SAVINGS: Original Budget Request E	Recommended As Self Liquidating Within Biennium F	Essential Deferred Maintenance Though Not Self Liquidating Within Biennium G	Deferable During Coming Biennium Although Desirable H	Unnecessary Now Or Probably At Any Near Future Time I	Self Liquidating Items Recommended But Not Previously Requested By Institution J
	Allentown State Hospital										
4	Change from Buck to Rice Coal			18,000		198,500	See Col. G	85,000	50,000	63,500	
5	Replacing Indirect Heating			1,000		2,000	2,000				
6	Replacing Hot Water Tanks					5,000		3,000		2,000	
10	Change from Chestnut to Rice Coal			750							1,500
11	Improved Firing Methods	1,000	5								
	Farview State Hospital										
2	Improved Firing Methods	2,000	7								
3	New Boilers					105,000				105,000	
8	Deaerating Heater			2,000			See Col. J				5,000
9	New Generator					8,000			8,000		
10	Change from Nut to Rice Coal			300							600
11	Saving Water Leakage	1,000	7								
	Harrisburg State Hospital										
1	Trucking vs Freighting of Coal	5,500	7								2,000
2	Use of Barley Instead of Rice			5,280							5,000
3	Improved Firing Methods	2,920	7								
7	New Bituminous Stokered Boiler			5,000	See Col. H				25,000	Not Requested	
8	Metering and Power House Logs			1,500							3,000
	Norristown State Hospital										
8	Reduction Power House Labor	2,400	7								
1	Competitive Coal Purchase	9,000	14								6,000
3	Use of Exhaust in Water Heaters			3,000							5,000
5	Metering and Power House Logs			2,500							
6	New Boiler House and Engine Room					1,208,000			700,000	508,000	
9	Substitution Steam for Gas			1,500							3,000
10	Change from Stove to Rice Coal			1,000							2,000

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	Torrance State Hospital										
2	New Stoker			3,500		8,000	8,000				
4	New Power House Building					128,000			75,000	53,000	
5	Two Boilers								25,000	25,000	
5	Two Generators									38,000	
6	Reduced Electricity Rates				2,000						
8	Impounding Dam					340,000				340,000	
10	New Feedwater Heater			500				3,000			
11	Additional Feed Pump							2,000			
12-18	Miscellaneous Operating Improvements	1,000	14								
	Wernersville State Hospital										
1	Improved Firing Methods	3,000	14								
2	Trucked vs Freighted Coal			3,950							2,000
3	Proper Check Incoming Coal	2,000	7								
7	Saving Exhaust to Atmosphere			3,000							7,500
8	New Generator					33,000				33,000	
11	Change from Sized to Rice Coal	1,000									2,000
	Mental Defectives										
	Laurelton State Village										
2	Improved Firing Methods	1,500	7								
3	Trucking vs Freighting			1,500							2,000
4	Competitive Coal Purchase	1,000	4								
5	Reduced Electricity Rates				1,000						
	Pennhurst State School										
1	Competitive Coal Purchase or)	4,000	14								
2	Change to Barley Anthracite)										
3	Improved Firing Methods	3,400	14								
4	New Power Plant					350,000			200,000	150,000	
5	Deferred Maintenance on Piping	2,000	7								
7	Elimination Purchased Electricity	2,000	7								
10	Change from Sized to Rice Coal	2,000									4,000
	Polk State School										
2	Improved Firing Methods	5,700	60								

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	Polk State School (Cont'd)										
3	Use Nut and Slack vs Mine Run	2,800									
3	New Feedwater Heater			2,000							4,000
5	Trucked vs Freighted Coal)			7,000							2,500
6	Competitive Coal Purchase)										
8	Additional Boiler					25,000				25,000	
8	Relocating Pump, tanks and Lines					25,000			25,000		
8	Coal Weighing and Handling Equipment			Included in Item Above		10,000	3,000			7,000	
13	Reduced Usage or Lower Gas Rates			1,000	1,000						2,000
	Penal										
	Philadelphia Eastern Penitentiary										
1	Saving Exhaust to Atmosphere			3,000							3,000
3	Use of Barley vs Buckwheat			4,500							4,500
4	Motor on Blowers vs Turbine			100							100
7	Use of Barley vs Sized Coal			500							1,000
8	Reduced Electricity Rates				300						
	Gratersford Eastern Penitentiary										
2	Improved Firing Methods	3,000									
3	Use of Rice vs Sized Coal			2,000							4,000
	Morganza Training School										
1	Substitution Coal for Gas			15,000							15,000
2	Use Engine Exhaust and Circulating Water			750							1,500
3	Trucking vs Freighting			1,750							3,500
6	Improved Firing Methods	500	4								
9	Repairs to Refrigerating Plants					2,500	2,500				
9	Impounding Reservoir					85,000			85,000		
9	Lining Storage Reservoir					18,000	8,000		10,000		
9	Replacement of Water Lines					7,500			7,500		
9	Electric Repairs and Replacements					3,500	3,500				
9	Repairs to Main Steam Line			500		8,000	8,000				
9	Underground Steam Lines			300		4,000	4,000				
9	Electric Extensions					5,000			5,000		
9	Repairs to Engines and Generators					3,500			3,500		
9	Boiler House Equipment			500		5,000	5,000				

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	Rockview Penitentiary										
2	Trucking vs Freighting			5,000							5,000
3	Reduced Electricity Rates				3,700						
4	Reduced Use or Rates on Gas			1,000							1,000
	Pittsburgh Western Penitentiary										
1	Improved Firing Methods	5,000	21								
2	Savings in Water Useage			1,000							2,000
3	Trucking vs Freighting			6,000							8,000
4	Replacement Indirect Radiation			2,000							4,000
5	New Engine Generators			2,000		30,156		30,156			
6	Water Softener			?		4,000		?			
7	New Deaerating Heater			1,000		5,000		5,000			
8	Meter on BoilerFeed Pumps					334		334			
9	New Soot Blowers			500		1,764		1,764			
10	Draft Guages and Control					1,203	1,203				
	Teachers Colleges Bloomsburg										
2	Reduced Electricity Rates				2,000						
	California T. C.										
2	Reduced Electricity Rates				1,100						
3	Reduced Water Rates				1,500						
4	New Water System			1,000				12,000			
5 - 8	New Heating Plant			1,400		170,000		40,000	130,000?		
9	Improved Coal Purchase Methods			1,000							(2,000
10	Miscellaneous Operating Improvements	1,000									(
	Indiana T. C.										
2	New Generator					23,000		23,000			
4	Saving Summer Engine Exhaust	500	2								
5	Reduced Water Rates				2,600						
6	Improved Coal Purchase Methods	1,000	3								
7	Reduced Gas Useage			500							1,000
	Kutztown T.C.										
1	Substitution Barley vs Buck Coal			6,000							6,000
2	Forced Draft			2,500							2,500

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	Kutztown Teachers College										
3	New Feedwater Heater			1,500							2,000
4	Barometric Draft Control					1,500				1,500	
6	Reduced Electricity Rates				1,200						
7	Sewage Disposal Plant					20,500		10,000	10,500		
	Mansfield Teachers College										
2	Improved Coal Purchase Methods			4,000		Insufficient data supplied to pass on budget request					4,000
	Westchester Teachers College										
2	Reduced Electricity Rates				1,000						
4	Improved Firing Methods	3,000	14								
5	Improved Coal Purchase Methods	800	3								
7	New Boiler					25,000				25,000	
8	Emergency Water System					40,000				40,000	
	Miscellaneous Institutions										
	Erie Soldiers' and Sailors' Home										
1	New Stand Pipe					25,000			25,000?		
2	Improved Coal Purchase Methods	500	3								
	Scranton Oral School										
1	Substitution Rice vs Duck			600							1,400
2	New Blowers					500				500	
3	New Ash Hoist					1,200			1,200		
5	Heating Line Repairs					2,500		2,500			
9	Reduced Water and Light Rates				400						
	Scranton State Hospital										
1-2	New Power Plant Complete			4,500		225,000 (See Complete Report)		225,000 (			

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	Cresson Tuberculosis Sanitarium										
2	Improved Coal Purchase Methods (Contingent on next item following)										
9	Boiler Extensions			4,500		45,000	8,000		37,000		
8	Water Work and Sewage Treatment					15,000		15,000			
10	Laundry Equipment and Incidental Changes					26,600			26,600		
	Capitol Hill Group										
	Reduced Electricity Rates				13,000						
	GRAND TOTALS	72,920	253	139,180	30,800	3,251,157	22,203	488,500	1,449,300	1,414,500	130,600